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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,438	02/14/2002	Joel J. Gummeson	399429	8724

30954 7590 06/16/2003

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EXAMINER

MCCLENDON, SANZA L

ART UNIT PAPER NUMBER

1711

DATE MAILED: 06/16/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,438

Applicant(s) *SK*

GUMMESON, JOEL J.

Examiner

Sanza L McClendon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4/6</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5, 8-13, 15, 19, 22-25, 27, 31, 34-37 and 39-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiromichi (EP 0 953 613A2).

Hiromichi teaches ink for ink-jet recording comprising a photoinitiator. Said ink additionally comprises a coloring agent, a polymerizable oligomer comprising at least to acrylic ester groups, water. This anticipates claim 1. Said oligomers includes water-soluble cationic polymerizable compounds (page 6, paragraphs 0031-0032 and pages 12-17), water-soluble anionic polymeric compounds, and non-ionic polymerizable compounds, such as, acrylic and methacrylic esters of multi-valent alcohols and glycidyl ethers derived from multi-valent alcohols (see pages 11-12) for use in both anionic and cationic ink compositions. Said non-ionic polymerizable compounds appear to anticipate the polyester acrylates of claims 5, 19, and 31. Said oligomers can be used in amounts from 1 to 30 parts by weight based on 100% of said ink composition, which appears to anticipate up to 30% in the ranges found in claims

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8-9, 22-23, and 34-35. Said polymerization initiator initiates non-ionic and cationic polymerizations under the influence of actinic radiation, such as ultraviolet or electron beam, and can be found in amounts from 0.3 to 10 parts by weight of the total ink composition. In addition to water, the composition can comprise an aqueous solvent, such as those listed in paragraphs 0074-0076, in amounts from 5 to 40 parts by weight. This anticipates claim 11-12, 25 and 37. Said colorant can be a pigment or dye used in amounts from 0.5 to 7.0 parts by weight. Per examples, water is added to the ink composition until the content weight of the total composition is 100%, which is above at least 50% by weight. This anticipates claims 10, 24, and 37.

Hiromichi teaches applying said ink composition uniformly to a substrate via an ink-jet printing method and irradiating with ultraviolet light. This teaching anticipates claim 15. The recorded image on the substrate anticipates the article of claim 39. Hiromichi teaches an ink cartridge (paragraph 0091) which comprises the ink composition of EP 0 953 613 useable in the method as taught by Hiromichi, which anticipates claim 40. Hiromichi does not expressly teach improving the water fastness of inked images using said ink compositions, however Hiromichi et al teaches adding a UV curable resin and a photoinitiator to an ink-jet formulation, jetting said ink onto a substrate and exposing to irradiation to cure, thus the improve water fastness should be inherent according applicant's method definition in claim 27 in the absence of unexpected results or evidence to the contrary. Until then claim 27 is deemed anticipated by the reference.

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The inventions of claims 1, 5, 8-13, 15, 19, 22-25, 27, 31, 34-37 and 39-40 are anticipated by the reference.

3. Claims 1-5, 7-19, 21-31, and 33-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanabe et al (EP 1 036 831 A1).

Tanabe et al teaches photocurable ink compositions for ink-jet recording. Said ink comprises a colorant, a urethane oligomer, a reactive monomer, a photopolymerization initiator, and an aqueous solvent. Said urethane oligomers can comprise polyester, polybutadiene, polyether, and polyol backbones, which appear to anticipate claims 2-4, 16-18 28-30 and 5, 19, and 31 if a polyester backbone is selected. Said urethane can be found in amounts from 3 to 30% by weight. This appears to anticipate the ranges of claims 8-9, 22-23 and 34-35 up to 30%. Said photopolymerization initiators can be selected from the list in paragraph 0028-0030 in amounts of at least 1.5 wt% as seen in the examples. This anticipates claims 14, 26, and 38. Said colorant can be a pigment dispersible in water and/or a dye dispersible in water. This anticipates claim 13. Tanabe et al teaches said aqueous solvent comprises water and a water-soluble organic solvent (see paragraphs 0041 to 0046). Said water-soluble organic solvent comprises 0.05 to 5% of a low-boiling organic solvent, 5 to 40% of a high-boiling organic solvent, and 0.1 to 40% by weight of a sugar alcohol. Said water is added to balance out the ink composition to 100-wt%. These ranges appear to anticipate claims 10-12, 24-25, and 36-37.

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Tanabe et al teaches depositing said ink composition onto a recording medium followed by light irradiation to cure said ink composition. This appears to anticipate claim 15. In addition, Tanabe et al teaches that the aqueous solvent can be removed by heating before polymerization to improve the efficiency of the polymerization reaction of the ink composition. This anticipated claims 7, 21, and 33. The recording medium with the cured ink composition appears to anticipate claim 39. Per the examples, Tanabe et al teaches loading said ink compositions into a recording head of an ink jet recording apparatus. Said recording head appears to anticipate the ink cartridge of claim 40.

Tanabe et al does not expressly teach improving the water-fastness of inked images using said ink compositions, however Hiromichi et al teaches adding a UV curable resin and a photoinitiator to an ink-jet formulation, jetting said ink onto a substrate and exposing to irradiation to cure, thus the improve water fastness should be inherent according applicant's method definition in claim 27 in the absence of unexpected results or evidence to the contrary. Until then claim 27 is deemed anticipated by the reference.

Claims 1-5, 7-19, 21-31, and 33-40 are anticipated by the reference.

4. Claims 1-6, 8-15, 19-20, 22-32, and 34-39 rejected under 35 U.S.C. 102(b) as being anticipated by Laksin et al (WO 00/3440 A1).

Laksin et al teaches radiation curable water-based cationic inks and coatings for use in ink-jet printing—see page 1, lines 10-12. Said ink comprises an aqueous

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solution of a cationic compound, such as a cycloaliphatic epoxy compound, a water compatible hydroxy functional cyclic ether compound, and water. In addition said composition comprises a colorant and a radiation curable cationic initiator. The total composition anticipates claim 1. Said cycloaliphatic epoxy resin anticipates claims 6, 20, and 32, and can be found, per examples, in the composition in amounts from about 11 to 70 wt%, which anticipates claims 8-9, and 22-23. Said hydroxy alkyl cyclic ether functions as a reactive diluent that helps form a single-phase ink solution with the cationic compound and water. These cyclic ethers appear to anticipate the co-solvents of claims 11-12, 25, and 37, wherein 12 is deemed to anticipated because said hydroxy cyclic ethers anticipates the alcohol, ether derivatives, ethers, and alcohol derivatives as found in claim 12. Water is added in the composition in amounts from about 0.5 to about 45-wt%, which appears to anticipate claims 10, 24, and 36, wherein about 45-wt% is deemed to anticipate at least 50 wt%. The colorant can be a dye or pigment, which anticipates claim 13. In addition to the cationic polymerizable components, a hybrid ink composition can be formed by addition free-radically polymerizable components, such as oligomers and polymers including acrylated epoxies, acrylated polyurethanes, and acrylated polyesters, monomer diluents, and photoinitiators for catalyzing the free-radically polymerizable compounds. When hybrid systems are used claims 2-5, 14, 16-19, 26, 28-31, 34-35 and 38 are anticipated by the reference.

Claim 15 is deemed to be anticipated because the method of claim 15 is a well-known nominal method and Laksin et al teaches an ink composition useful in an ink-jet

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method that comprise water, a colorant, an water-soluble polymerizable resin, and a photoinitiator that is curable by exposure to radiation. Any substrate coated and cured with the ink as taught by Laksin et al anticipates claim 39. Laksin et al does not expressly teach improving the water-fastness of inked images using said ink compositions, however Hiromichi et al teaches adding a UV curable resin and a photoinitiator to an ink-jet formulation, jetting said ink onto a substrate and exposing to irradiation to cure, thus the improve water-fastness should be inherent according applicant's method definition in claim 27 in the absence of unexpected results or evidence to the contrary. Until then claim 27 is deemed anticipated by the reference.

Claims 1-6, 8-15, 19-20, 22-32, and 34-39 are anticipated by the reference.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Claims 1-6, 8-9, 11-20, 22-23, 25-32, and 34-39 can be found in US Patent 6,294,592 B1. Claims 1, 5-6, 8-9, 11-15, 19-20, 22-23, 25-27, 31-32, 34-35, and 37-38 are found in EP 0 658 607 A1. Claims 1, 6, 8-10, 13-15, 20, 22-24, 26-27, 32, 34-236, and 39-40 are found in EP 0 071 345.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanza L McClendon whose telephone number is (703) 305-0505. The examiner can normally be reached on Monday through Friday 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax

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phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0657.

Sanza L McClendon

Examiner

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SMc

June 11, 2003



James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700